



Mr Samuel Borries, Remedial Project Manager
USEPA Region 5
77 W Jackson Blvd (SE-5J)
Chicago, IL 60604

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Subject
Subcontractors
Plainwell Time Critical Removal Action (TCRA)
Allied Paper, Inc /Portage Creek/Kalamazoo River Superfund Site

INDUSTRIAL

Dear Sam:

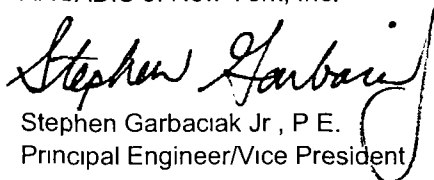
As outlined in Paragraph 11 of the 2007 Administrative Settlement Agreement and Order on Consent for Removal Action for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site, this letter presents the qualifications for the following:

- Dr Allen Kurta, a contractor retained to perform a survey of trees at the site
- Prein & Newhof, a contractor retained to perform survey work.
- Terra Contracting, LLC, a contractor retained to provide construction support (e.g., clearing, grubbing, earthwork).

Please contact me if you have any questions.

Sincerely,

ARCADIS of New York, Inc.


Stephen Garbaciak Jr, P E.
Principal Engineer/Vice President

Attachment

Copies

Shari Kolak, United States Environmental Protection Agency
Paul Bucholtz, Michigan Department of Environmental Quality
Sharon Hanshue, Michigan Department of Natural Resources
Bonnie Allyn Barnett, Esq, Drinker Biddle & Reath LLP
Steven Cook, Esq, Lyondell/Equistar
J Michael Davis, Esq, Georgia-Pacific Corporation
Mellonie Fleming, Esq, Georgia-Pacific Corporation
Paul Montney, P E, Georgia-Pacific Corporation
Mark Brown, Ph D, Georgia-Pacific Corporation
Mark Tapp, Lyondell/Equistar

Date
March 6, 2007

Contact
Steve Garbaciak

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Email
steve.garbaciak@
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Our ref
B0064530 #2



Dr. Allen Kurta

Curriculum Vitae of Allen Kurta

ADDRESS

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TELEPHONE

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ACADEMIC TRAINING:

- 1981–1986 Boston University Boston, Massachusetts. Ph.D. in Biology.
- 1980. University of Costa Rica and Organization for Tropical Studies (OTS). San Jose, Costa Rica Selected as a participant in a two-month field course conducted in Central America.
- 1978–1980. Michigan State University. East Lansing, Michigan. Master of Science in Zoology.
- 1970–1975. Michigan State University. East Lansing, Michigan Bachelor of Science in Zoology. Secondary Teaching Certificate in Biology, General Science, Physical Science, and Earth Science

POSITIONS HELD

- 1997–present. Department of Biology, Eastern Michigan University, Ypsilanti, Michigan. Professor of Biology. Teaching duties include Comparative Vertebrate Anatomy, Vertebrate Zoology, Mammalogy, Physiological Ecology, General Zoology, and General Biology Coordinator of Graduate Programs, 1997–2003, 2004–present.
- 1992–1997. Department of Biology, Eastern Michigan University, Ypsilanti, Michigan. Associate Professor of Biology. Tenure granted September 1992.
- 1988–1992. Department of Biology, Eastern Michigan University, Ypsilanti, Michigan. Assistant Professor of Biology.
- 1986–1988. Department of Biology, Boston University, Boston, Massachusetts. Lecturer and Research Associate. Teaching responsibility was General Ecology
- 1985–1986 Department of Biology, Nazareth College, Kalamazoo, Michigan. Assistant Professor of Biology. Teaching duties included General Biology, Human Anatomy, and Human Function (Anatomy and Physiology for Non-majors)
- 1982–1985. Department of Biology, Boston University, Boston, Massachusetts. Graduate Teaching Assistant in Human Anatomy, Human Physiology, Comparative Anatomy, and Vertebrate Zoology.
- 1978–1980. The Museum and Department of Zoology, Michigan State University. East Lansing, Michigan Graduate Research Assistant in Mammalogy.
- 1975–1978. Berrien Springs High School, Berrien Springs, Michigan. General Biology, Health Science, and Earth Science Teacher. Tenure granted May 1977.

ADDITIONAL EXPERIENCE.

- 1980–present. Private consultant concerning habitat requirements and field surveys for small mammals, particularly endangered species of bats

MASTER'S THESIS.

- 1980 The bats of southern Lower Michigan. M.S. thesis Michigan State University, 147 pp.

DOCTORAL DISSERTATION

- 1986 Insulation, thermoregulation, and metabolic rates of the little brown bat (*Myotis lucifugus*) under simulated roost conditions. Ph.D. dissertation, Boston University, 283 pp.

BOOKS

- Kurta, A. In preparation The bats of Michigan Indiana State University Press, Terre Haute, Indiana.
- M. Lacki, J. Hayes, and A. Kurta, eds. 2007 Bats in forests conservation and management. Johns Hopkins University Press, Baltimore, Maryland, 368 pp.
- M. R. Gannon, A. Kurta, A. Rodriguez-Duran, and M. R. Willig. 2005. The bats of Puerto Rico an island focus and a Caribbean perspective. Texas Tech Press, Lubbock, Texas, 239 pp.
- Kurta, A., and J. Kennedy, eds. 2002. The Indiana bat: biology and management of an endangered species. Bat Conservation International, Austin, Texas, 253 pp.
- Kurta, A. 1995. Mammals of the Great Lakes Region. University of Michigan Press, Ann Arbor, Michigan, 376 pp.
- Kurta, A. 1995. An illustrated dissection guide to the Norway rat. Delta Biological (Ranaco), Tucson, Arizona, 34 pp.

PEER REVIEWED/EDITED PUBLICATIONS (* student co-authors):

- Teramino, J. A.*, and A. Kurta. In preparation. Use of a volumetric apparatus to predict fat content of living small mammals. To be submitted to Physiological and Biochemical Zoology
- Kurta, A., G. Kwisienski, and T. Jones* In preparation. The square-eared anomaly in little brown bats, *Myotis lucifugus*. To be submitted to Canadian Field-Naturalist
- Eisenbach, J. A., and A. Kurta. In preparation. Overwintering ecology of insects in abandoned mines of northern Michigan. To be submitted to Oecologia.
- Soto-Centeno, J. A.*, D. Phillips, A. Kurta, and K. Hobson In preparation. Dietary variability in nectar-feeding bats: an analysis using stable isotopes To be submitted to Journal of Animal Ecology.
- Winhold, L.*, and A. Kurta. In review Netting surveys for bats in the Northeast: differences associated with habitat, duration of netting, and use of consecutive nights. Northeastern Naturalist
- Kurta, A., J. O. Whitaker, Jr., W. Wrenn, and A. Soto-Centeno*. In review. Ectoparasitic assemblages on mormoopid bats from Puerto Rico Journal of Medical Entomology
- Kurta, A., M. Schwartz, and C. Anderson. In review. Does a population of cougars exist in Michigan? American Midland Naturalist.
- J. Deunff, J. O. Whitaker, Jr., and A. Kurta. In press. Description of *Cameronieta torrei dusbabeki*, new subspecies with nymphs (Acari Mesostigmata Spinturnicidae), parasitizing *Pteronotus quadridens fuliginosus* (Gray, 1843) (Chiroptera. Mormoopidae) from Puerto Rico. Journal of Medical Entomology
- Kurta, A. L. Winhold*, J. O. Whitaker, Jr., and R. Foster. In press. Range expansion and changing abundance of the eastern pipistrelle (Chiroptera. Vespertilionidae) in the central Great Lakes region. American Midland Naturalist, 157(2).
- Kurta, A., C. A. Kurta, and H. Unger. In press. An unintended trap for a western fox snake Michigan Natural History.
- Barclay, R. M. R., and A. Kurta. 2007 Ecology and behavior of bats roosting in tree cavities and under bark In Bats in forests conservation and management. (M. J. Lacki, J. P. Hayes, and A. Kurta, eds.) Johns Hopkins University Press, Baltimore, Maryland
- Soto-Centeno, J. A. *, and A. Kurta. 2006 Diet of the brown flower bat (*Erophylla sezekorni*) and the Greater Antillean long-tongued bat (*Monophyllus redmani*) on Puerto Rico Journal of Mammalogy, 87(1) 19–26

- Winhold, L.*, and A. Kurta. 2006. Aspects of migration by the endangered Indiana bat (*Myotis sodalis*). *Bat Research News*, 47(1) 1–6.
- Kurta, A. 2005. Roosting ecology and behavior of Indiana bats (*Myotis sodalis*) in summer. Pages 29–42 in *The Indiana Bat and Coal Mining: a technical interactive forum*. (K. C. Vories and A. Harrington, eds.). Office of Surface Mining, U. S. Department of the Interior, Alton, Illinois.
- Kurta, A., E. Hough*, L. Winhold*, and R. Foster. 2005. The evening bat (*Nycticeius humeralis*) on the northern edge of its range—a maternity colony in Michigan. *American Midland Naturalist*, 154:264–267.
- Winhold, L.*, E. Hough*, and A. Kurta. 2005. Long-term fidelity of tree-roosting bats to a home area. *Bat Research News*, 46:9–10.
- Murray, S. W.*, and A. Kurta. 2004. Nocturnal activity of the endangered Indiana bat (*Myotis sodalis*). *Journal of Zoology (London)*, 262: 197–206.
- Tibbels, A.*, and A. Kurta. 2003. Bat activity is low in thinned and unthinned stands of red pine. *Canadian Journal of Forest Research* 33: 2436–2442.
- Soto-Centeno, J. A.*, and A. Kurta. 2003. Description of fetal and newborn brown flower bats, *Erophylla sezekorni* (Chiroptera: Phyllostomidae). *Caribbean Journal of Science*, 39: 233–234.
- Kurta, A., M. K. Clark, J. Kath, P. Brown, K. Navo, D. Saugey, M. Tuttle, E. Valdez. 2003. Prioritizing monitoring needs. Pages 258–261 in *Monitoring Trends in Bat Populations of the United States and Territories: Problems and Prospects* (O’Shea, T. J., and M. A. Bogan, eds.). U.S. Geological Survey, Midcontinent Ecological Science Center, Fort Collins, Colorado. Information and Technology Report USGS/BRD/ITR—2003–0003.
- Kurta, A., S. W. Murray*, and D. H. Miller. 2002. Roost selection and movements across the summer landscape. Pages 118–129 in *The Indiana bat: biology and management of an endangered species*. Bat Conservation International, Austin, Texas.
- Murray, S. W.*, and A. Kurta. 2002. Spatial and temporal variation in diet. Pages 182–192 in *The Indiana bat: biology and management of an endangered species*. Bat Conservation International, Austin, Texas.
- Viele, D. P.*, A. Kurta, and J. Kath. 2002. Timing of nightly emergence. Pages 199–207 in *The Indiana bat: biology and management of an endangered species*. Bat Conservation International, Austin, Texas.
- Kurta, A., and H. Rice*. 2002. Ecology and management of the Indiana bat in Michigan. *Michigan Academician* (Papers of the Michigan Academy of Science, Arts, and Letters), 33(3): 361–376.
- Kurta, A., and S. W. Murray*. 2002. Philopatry and migration of banded Indiana bats (*Myotis sodalis*) and effects of radio transmitters. *Journal of Mammalogy* 83(2): 585–589.
- Kurta, A. 2001. Bats on the surface: the need for shelter, food, and water. Pages 197–204 in *Bat conservation and mining* (K. C. Vories and D. Throgmorton, eds.). Office of Surface Mining, U. S. Department of the Interior, Alton, Illinois.
- Martinus, W. F., and A. Kurta. 2001. Eastern pipistrelle in Ottawa County. *Michigan Natural History*, 8(3): 133–135.
- Crawford, E. *, and A. Kurta. 2000. Color of pitfall affects trapping success for anurans and shrews. *Herpetological Review*, 31(4): 222–224.
- Kurta, A. 2000. Bats in Michigan: an annotated list of scientific publications and theses. *Michigan Natural History*, 7(3): 137–145.
- Kurta, A. 1999. Big brown bat/*Eptesicus fuscus*. Pages 115–117 in *The complete book of North American mammals* (D. E. Wilson and S. Ruff, eds.). Smithsonian Institution Press, Washington, D. C., 750 pp.
- Kurta, A. 1999. Southern yellow bat/*Lasius ega*. Pages 107–109 in *The complete book of North American mammals* (D. E. Wilson and S. Ruff, eds.). Smithsonian Institution Press, Washington, D. C., 750 pp.

- Sherwood, D. E., and A. Kurta. 1999. Winter record of the silver-haired bat from Wayne Co. Michigan Natural History, 6(3) 153–155.
- Foster, R.*, and A. Kurta. 1999. Roosting ecology of the northern bat (*Myotis septentrionalis*) and comparisons with the endangered Indiana bat (*Myotis sodalis*). Journal of Mammalogy, 80(2) 659–672.
- Kurta, A., and J. O. Whitaker, Jr. 1998. Diet of the endangered Indiana bat (*Myotis sodalis*) on the northern edge of its range. American Midland Naturalist, 140(2):280–286.
- Unger, C. A.*, and A. Kurta. 1998. Status of the eastern pipistrelle (Mammalia: Chiroptera) in Michigan. Michigan Academician (Papers of the Michigan Academy of Science, Arts, and Letters), 30(4):423–437.
- Kurta, A., J. Caryl*, and T. Lipps*. 1997. Bats and Tippy Dam: species composition, seasonal use, and environmental parameters. Michigan Academician (Papers of the Michigan Academy of Science, Arts, and Letters), 29(4):473–490.
- Kurta, A., K. J. Williams*, and R. Mies*. 1996. Ecological, behavioural, and thermal observations of a peripheral population of Indiana bats (*Myotis sodalis*). Pages 102–117 in Bats and Forests (R. M. R. Barclay and R. M. Brigham, eds.). Research Branch, Ministry of Forests, Province of British Columbia, Victoria, B.C., 292 pp.
- Mies, R.*, A. Kurta, and D. G. King*. 1996. *Eptesicus fuscus*. Mammalian Species, 526:1–7.
- Kurta, A., and G. C. Lehr*. 1995. *Lasiurus ega*. Mammalian Species, 515:1–7.
- Kurta, A., and R. Foster*. 1995. The brown creeper (Aves: Certhiidae) a competitor of bark-roosting bats? Bat Research News, 36(1) 6–7.
- Kurta, A., and J. A. Teramino*. 1994. A novel hibernaculum and noteworthy records of the Indiana bat and eastern pipistrelle (Chiroptera: Vespertilionidae). American Midland Naturalist, 132(2) 410–413.
- Kurta, A., and R. Foster*. 1994. An unusual concentration of hoary bats (*Lasiurus cinereus*) in Illinois. Bat Research News, 35:83.
- Kurta, A. 1994. Bark roost of a male big brown bat, *Eptesicus fuscus*. Bat Research News, 35(3) 63.
- Kurta, A., J. Kath, E. L. Smith, R. Foster*, M. W. Orick, and R. Ross. 1993. A maternity roost of the endangered Indiana bat (*Myotis sodalis*) in an unshaded, hollow, sycamore tree (*Platanus occidentalis*). American Midland Naturalist, 130(2):405–407.
- Kurta, A., D. King*, J. A. Teramino*, J. M. Sibley*, and K. J. Williams*. 1993. Summer roosts of the endangered Indiana bat (*Myotis sodalis*) on the northern edge of its range. American Midland Naturalist, 129(1):132–138.
- Kurta, A., and J. A. Teramino*. 1992. Bat community structure in an urban park. Ecography (Holarctic Ecology), 15(1) 257–261.
- Kurta, A., and M. Ferkin. 1991. The correlation between demography and metabolic rate: a test using the beach vole (*Microtus breweri*) and the meadow vole (*Microtus pennsylvanicus*). Oecologia, 87(1):102–105.
- Kurta, A., and M. E. Stewart. 1991. Parturition in the silver-haired bat, *Lasionycteris noctivagans*, with a description of the neonates. Canadian Field-Naturalist, 104(4) 598–600.
- Kurta, A. 1991. Torpor patterns in food-deprived *Myotis lucifugus* (Chiroptera: Vespertilionidae) under simulated roost conditions. Canadian Journal of Zoology, 69(1) 255–257.
- Kurta, A., and R. H. Baker. 1990. *Eptesicus fuscus*. Mammalian Species, 356:1–10.
- Kurta, A., T. H. Kunz, and K. A. Nagy. 1990. Energetics and water flux of free-ranging big brown bats (*Eptesicus fuscus*) during pregnancy and lactation. Journal of Mammalogy, 71(1) 59–65.
- Kurta, A., T. Hubbard*, and M. E. Stewart. 1989. Bat species diversity in central Michigan. Jack-Pine Warbler, 67(3):80–87.

- Kurta, A., G. P. Bell, K. A. Nagy, T. H. Kunz. 1989. Water balance of free-ranging little brown bats (*Myotis lucifugus*) during pregnancy and lactation. *Canadian Journal of Zoology*, 67(10): 2468–2472.
- Kurta, A., G. P. Bell, K. A. Nagy, T. H. Kunz. 1989. Energetics of pregnancy and lactation in free-ranging little brown bats (*Myotis lucifugus*). *Physiological Zoology*, 62(3): 804–818.
- Dood, S. B., and A. Kurta. 1988. Additional records of Michigan bat ectoparasites. *Great Lakes Entomologist*, 21(3): 117–118.
- Kurta, A., and T. H. Kunz. 1988. Roosting metabolic rate and body temperature of male little brown bats (*Myotis lucifugus*) in summer. *Journal of Mammalogy*, 69(3): 645–651.
- Kurta, A., and M. Fujita. 1988. Design and interpretation of laboratory thermoregulation studies. Pages 333–352 in *Ecological and behavioral methods for the study of bats*. Smithsonian Institution Press, Washington, D.C., 533 pp.
- Kunz, T. H., and A. Kurta. 1988. Capture methods and holding devices. Pages 1–29 in *Ecological and behavioral methods for the study of bats*. Smithsonian Institution Press, Washington, D.C., 533 pp.
- Kurta, A., K. A. Johnson*, and T. H. Kunz. 1987. Oxygen consumption and body temperature of female little brown bats (*Myotis lucifugus*) under simulated roost conditions. *Physiological Zoology*, 60(4): 386–397.
- Kurta, A., and T. H. Kunz. 1987. Size of bats at birth and maternal investment during pregnancy. *Symposia of the Zoological Society of London*, 57: 79–107.
- Kurta, A. 1986. Factors affecting the resting and post-flight body temperature of little brown bats, *Myotis lucifugus*. *Physiological Zoology*, 59(4): 429–438.
- Kurta, A. 1985. External insulation available to a non-nesting mammal, the little brown bat (*Myotis lucifugus*). *Comparative Biochemistry and Physiology*, 82A(2): 413–420.
- Hitchcock, H. B., R. Keen, and A. Kurta. 1984. Survival rates of *Myotis leibii* and *Eptesicus fuscus* in southeastern Ontario. *Journal of Mammalogy*, 65(1): 126–30.
- Kurta, A. 1982. Social facilitation of foraging behavior by the hermit crab, *Coenobita compressus*, in Costa Rica. *Biotropica*, 14(2): 132–136.
- Dood, S. B., and A. Kurta. 1982. New records for ectoparasites of Michigan bats. *Great Lakes Entomologist*, 15(3): 217–218.
- Kurta, A. 1982. A review of Michigan bats: seasonal and geographic distribution. *Michigan Academician* (Papers of the Michigan Academy of Science, Arts and Letters), 14(3): 295–312.
- Kurta, A. 1982. Flight patterns of *Eptesicus fuscus* and *Myotis lucifugus* over a stream. *Journal of Mammalogy*, 63(2): 335–337.
- Kurta, A. 1980. Notes on summer bat activity at Michigan caves. *National Speleological Society Bulletin*, 42(4): 68–69.
- Kurta, A. 1980. Status of the Indiana bat, *Myotis sodalis*, in Michigan. *Michigan Academician* (Papers of the Michigan Academy of Science, Arts and Letters), 13(1): 31–36.
- Kurta, A., and J. O. Matson. 1980. Disproportionate sex ratio in the big brown bat, *Eptesicus fuscus*. *American Midland Naturalist*, 104(2): 367–369.
- Kurta, A. 1980. Accidental death of bats trapped in ceiling crevices. *Jack-Pine Warbler*, 58(1): 34.
- Kurta, A. 1979. Bat rabies in Michigan. *Michigan Academician* (Papers of the Michigan Academy of Science, Arts and Letters), 12(2): 221–230.
- Kurta, A. 1979. Southern flying squirrel caught in mist net. *Jack-Pine Warbler*, 57(3): 170.

INVITED, POPULAR ARTICLE

- Kurta, A., and S. M. Smith. 2004. New life for old mines: bat hibernacula in Michigan's Upper Peninsula. Pages 47–51 in *2004 NSS Convention Guidebook* (T. Rea, ed.). National Speleological Society, Huntsville, Alabama.

PUBLISHED PHOTOGRAPHS

- 2005 Red bat. Page 268 *in* Biodiversidad de Puerto Rico vertebrados terrestres y ecosistemas (R. L. Joglar, ed.). Editorial del Instituto de Cultura Puertorriqueña, San Juan, Puerto Rico.
- 1999. Big brown bat, newborn. Page 442 *in* Walker's mammals of the world Volume 1. 6th Edition (R. M. Nowak, editor) Johns Hopkins University Press, Baltimore.

INVITED PRESENTATIONS AND WORKSHOPS

- 2006. Presentation "Understanding bats " Michigan Rabies Conference, Lansing, Michigan. Sponsored by Michigan Department of Community Health
- 2006 Presentation: "Bats and wind power the Noble Windpark " Michigan Wind Working Group, Michigan Public Service Commission.
- 2005 Panelist. Indiana Bat Risk Assessment Workshop Sponsored by U.S. Fish and Wildlife Service, National Conservation Training Center, Shepherdstown, West Virginia.
- 2005. Presentation "Ecology and conservation of bats in Michigan." Wildlife Division, Michigan Department of Natural Resources, Bellair, Michigan (annual in-service training for the division)
- 2004. Presentation "Maternity habitat of the Indiana bat." Symposium on The Indiana Bat and Coal Mining Sponsored by U.S. Department of Interior. Louisville, Kentucky.
- 2004 Presentation "Ecological aspects of tree-roosting bats " (Co-authored with and presented by R. Barclay, University of Calgary). 2nd Bats and Forests Symposium, Hot Springs, Arkansas. Sponsored by U.S. Forest Service and Bat Conservation International.
- 2004. Presentation "Bats 101 a primer on bat biology and ecology " 2nd Bats and Forests Symposium, Hot Springs, Arkansas. Sponsored by U.S. Forest Service and Bat Conservation International.
- 2004. Participated in "Workshop on Habitat Needs of Forest Bats, with Emphasis on the Endangered Indiana Bat." Sponsored by U.S. Fish and Wildlife Service. National Conservation Training Center, Shepherdstown, West Virginia
- 2003 External examiner for Ph.D. dissertation defense of Craig Willis, University of Regina, Regina, Saskatchewan. Title of dissertation Physiological ecology of roost selection in female, forest-living big brown bats (*Eptesicus fuscus*) and hoary bats (*Lasiurus cinereus*).
- 2001. Presentation "Conservation and management of an endangered species the Indiana bat in the eastern United States." Symposium on Conservation of Bats and Their Habitats. Contemporary Research and Management. Sponsored by The Wildlife Society Reno, Nevada
- 2001. Presentation "Journeys in space and time movements of the endangered Indiana bat." Symposium entitled The Indiana Bat: Biology and Management of an Endangered Species. Sponsored by U.S. Forest Service, U S. Fish and Wildlife Service, Bat Conservation International, and others. Lexington, Kentucky.
- 2000. Presentation: "Bats on the surface the need for shelter, food, and water. Symposium on Bat Conservation and Mining. a Technical Interactive Forum." Sponsored by U.S. Department of Interior. St. Louis, Missouri.
- 1999. Participated in "Workshop on Monitoring Trends in U S. Bat Populations Problems and Prospects." Sponsored by U S. Geological Survey, Midcontinent Ecological Science Center. Estes Park, Colorado.
- 1997 Participated in "Workshop for Development of a Habitat Suitability Index for the Endangered Indiana Bat." Sponsored by U S. Fish and Wildlife Service St. Louis, Missouri.
- 1995. Presentation "Ecological, behavioral, and thermal observations of a peripheral population of Indiana bats." Symposium on Bats and Forests Sponsored by British Columbia Ministry of Forests, Victoria.

1994. Presentation "Bats of the Great Lakes Region " Great Lakes Mine Assessment for Bats Workshop Iron Mountain, Michigan Sponsored by Bat Conservation International

OTHER PROFESSIONAL PRESENTATIONS (national and international meetings only)

- 2006 Range expansion and changing abundance of the eastern pipistrelle. 36th Annual North American Symposium on Bat Research. Wilmington, North Carolina.
2004. Ectoparasites of mormoopid bats on Puerto Rico 34th Annual North American Symposium on Bat Research. Bureau of Land Management, Salt Lake City
2002. Ecology and management of the Indiana bat on the northern edge of its range. 32nd Annual North American Symposium on Bat Research University of Vermont.
- 2001 Journeys in space and time. movements of the endangered Indiana bat. 31st Annual North American Symposium on Bat Research. Victoria, British Columbia.
2001. Roosting ecology of the endangered Indiana bat (*Myotis sodalis*) in the eastern United States. 12th International Bat Research Conference, Kuala Lumpur, Malaysia
2000. Philopatry and migration of Indiana bats. 29th Annual North American Symposium on Bat Research, Miami University.
- 2000 Indiana bats (*Myotis sodalis*): journeys in space and time 80th Annual Meeting of the American Society of Mammalogists. University of New Hampshire.
1998. Roosting ecology of the northern bat (*Myotis septentrionalis*). Eleventh International Bat Research Conference, Pirenopolis, Brazil.
1998. Roosting ecology of the northern bat and comparisons with the endangered Indiana bat 78th Annual Meeting of the American Society of Mammalogists, Virginia Tech University.
1997. Regional differences in the diet of the endangered Indiana bat? 77th Annual Meeting of the American Society of Mammalogists, Oklahoma State University
1996. Diet of the Indiana bat in Michigan. 26th Annual North American Symposium on Bat Research, Illinois Wesleyan University
1996. Bats in a dam 76th Annual Meeting of the American Society of Mammalogists, University of North Dakota, Grand Forks
1994. Thermal aspects of Indiana bats (*Myotis sodalis*) roosting in trees. 24th Annual North American Symposium on Bat Research, Universidad Nacional Autonoma de Mexico, Ixtapa, Mexico
- 1994 Roost-site selection by the Indiana bat (*Myotis sodalis*) on the northern edge of its range a three-year study. 74th Annual Meeting of the American Society of Mammalogists, Smithsonian Institution, Washington, D. C.
1993. An unusual roost of the endangered Indiana bat (*Myotis sodalis*) 73rd Annual Meeting of the American Society of Mammalogists, Western Washington State University
- 1992 Do Indiana bats require shaded maternity roosts? 22nd Annual North American Symposium on Bat Research, University of Sherbrooke, Quebec.
1991. Preliminary observations on Indiana bat roost trees in southern Michigan. 21st Annual North American Symposium on Bat Research Austin, Texas.
1991. Bat community structure along an urban riparian corridor. 71st Annual Meeting of the American Society of Mammalogists Kansas State University.
- 1990 Energetic parameters of the beach vole (*Microtus breweri*) and the meadow vole (*Microtus pennsylvanicus*). 70th Annual Meeting of the American Society of Mammalogists. Frostburg State University.
1989. Torpor patterns in food-deprived little brown bats (*Myotis lucifugus*) 19th Annual North American Symposium on Bat Research University of Tennessee.
- 1989 Water balance of free ranging little brown bats (*Myotis lucifugus*) during pregnancy and lactation 69th Annual Meeting of the American Society of Mammalogists University of Alaska.

- 1988. Energetics of free-ranging big brown bats, *Eptesicus fuscus*. 18th Annual North American Symposium on Bat Research. University of Calgary
- 1988. Reproductive energetics and water flux in free-ranging big brown bats (*Eptesicus fuscus*). 68th Annual Meeting of the American Society of Mammalogists. Clemson University
- 1987. Energetics of pregnancy and lactation in free-living little brown bats, *Myotis lucifugus*. 17th Annual North American Symposium on Bat Research. University of Toronto.
- 1987. Field metabolic rate and daily energy expenditure during pregnancy and lactation in the free-ranging little brown bats (*Myotis lucifugus*). 67th Annual Meeting of the American Society of Mammalogists. University of New Mexico.
- 1986. A daily energy budget for pregnant little brown bats (*Myotis lucifugus*). 66th Annual Meeting of the American Society of Mammalogists. University of Wisconsin.
- 1985. Environmental effects on thermoregulation and metabolic rate in temperate insectivorous bats (*Myotis lucifugus*). Seventh International Bat Research Conference. University of Aberdeen, Aberdeen, Scotland.
- 1985. Bats as mammalian hummingbirds: environmental effects on thermoregulation and metabolic rate. 65th Annual Meeting of the American Society of Mammalogists. University of Maine.
- 1984. The insulative value of bat nests. A cooling curve analysis of clustering within wooden roosts. 15th Annual North American Symposium on Bat Research. Rockford College.
- 1984. The myth of daily torpor in temperate insectivorous bats. 64th Annual Meeting of the American Society of Mammalogists. Humboldt State University.
- 1983. Thermoregulatory ability of clustered little brown bats (*Myotis lucifugus*). 63th Annual Meeting of the American Society of Mammalogists. University of Florida.
- 1982. The effects of reproductive condition, clustering and wooden roosts on thermoregulation in the little brown bat *Myotis lucifugus*. 13th Annual North American Symposium on Bat Research. University of Louisville.
- 1981. Differential use of flight space by two vespertilionids. 12th Annual North American Symposium on Bat Research. Cornell University.
- 1981. Flight patterns of *Eptesicus fuscus* and *Myotis lucifugus*. 61st Annual Meeting of the American Society of Mammalogists. Miami University.
- 1980. Status of *Myotis sodalis*, *Pipistrellus subflavus* and *Nycticeius humeralis* in Michigan. 60th Annual Meeting of the American Society of Mammalogists. University of Rhode Island

AWARD

- 2005. Ronald Collins Distinguished Faculty Award. Eastern Michigan University. Awarded for career-long achievement in scholarly activity.

PROFESSIONAL AFFILIATIONS

American Society of Mammalogists
 The Wildlife Society
 American Association for the Advancement of Science
 Michigan Academy of Science, Arts, and Letters.
 Sigma Xi.

PROFESSIONAL SERVICE

- 1995–present. Member, Recovery Team for the Indiana Bat, United States Fish and Wildlife Service
- 1989–present. Member, Technical Advisory Committee for Mammals, Endangered Species Program, Michigan Department of Natural Resources. Chair, 2004–present
- 1992–present. Feature Editor, Bat Research News (peer-reviewed with subscribers in over 40 countries)

1996–1999 Associate Editor, *Journal of Mammalogy*
 2006–present Member, Advisory Board, Center for North American Bat Research and Conservation. Indiana State University.
 2000–present Member, Grants-in-Aid Committee, American Society of Mammalogists.
 1988–present. Various positions with the Michigan Karst Conservancy (a non-profit corporation dedicated to preserving caves and cave-related biota) Vice President, 1995–1996; Trustee, 1990–1995 (Chairman of the Board, 1994–1995), 1996–2004, 2005–present, Member, Science Advisory Subcommittee, Fiborn Karst Preserve, 1988–present.
 1995–1996. Chair. Zoology Section, Michigan Academy of Science, Arts, and Letters.
 1994–1995. Vice Chair. Zoology Section, Michigan Academy of Science, Arts, and Letters.
 1988–present. Reviewer for journals *Acta Chiropterologica*, *Acta Theriologica*, *American Midland Naturalist*, *American Naturalist*, *Behavioral Ecology and Sociobiology*, *Ecography*, *Caribbean Journal of Science*, *Functional Ecology*, *Journal of Applied Ecology*, *Journal of Mammalogy*, *Journal of Wildlife Management*, *Journal of Zoology* (London), *Michigan Academician*, *Northeastern Naturalist*, *Oecologia*, *Ohio Journal of Science*, *Oikos*, *Philosophical Transactions of the Royal Society*, *Physiological Zoology*, *Southeastern Naturalist*, and *Southwestern Naturalist*, Reviewer for granting agencies: American Society of Mammalogists, Bat Conservation International, Biodiversity Grants Program (Province of Alberta), National Geographic Society (Committee for Research and Exploration), National Science Foundation, and Scott Neotropic Fund
 1983–1988. Associate Editor, *The National Speleological Society Bulletin*.

UNIVERSITY SERVICE

1998–2003, 2004–present Department of Biology. Coordinator of Graduate Studies.
 1992–present. Department of Biology. Co-operative Education Advisor.
 2001–2004. Department of Biology. Personnel Committee. Member, 2001–2003, Chair, 2003–2004; Alternate, 2004–present.
 2003–2004. Department of Biology. Department Head, Pro Tem
 1999–2000 Department of Biology. Search Committee for General Biology.
 1999–2000. Department of Biology. Search Committee for Ichthyologist Chair
 1997–1998. Department of Biology. Search Committee for Invertebrate Biologist.
 1996–1997. Department of Biology. Search Committee for Science Ed Position.
 1994–1996. Department of Biology. Curriculum Committee.
 1994 Eastern Michigan University. The Graduate School. Graduate Council.
 1994. Eastern Michigan University. Academic Development Committee of the Graduate Council.
 1993–1996. College of Arts and Sciences. Committee on Research and Sabbatical Leaves.
 1992–1995. Department of Biology. Ecosystem Committee
 1992–1993. Department of Biology. Graduate Committee
 1992–1993 Department of Biology. Scholarship Committee
 1991–1992 Eastern Michigan University. All-University Equivalency Task Force.
 1990–1991. Department of Biology. Search Committee for Botanist. Co-chair.

INTERNAL GRANTS

2006 Eastern Michigan University “Determining pregnancy in free-ranging bats using ultrasound”
 2003. Eastern Michigan University. College of Arts and Sciences “Request for a scanning radio receiver/data logger”
 2003. Eastern Michigan University. Graduate School “Marketing proposal for the Graduate Program in Biology” (Co-applicant with R. Neely and M. Angell)
 2002 Eastern Michigan University Graduate School Research Support Award. “Nectar-feeding bats need protein too”

- 1999. Eastern Michigan University Graduate School Research Support Award. "Sequential analysis of dolphin vocalizations."
- 1997 Eastern Michigan University. Sabbatical Leave Award "Michigan bats "
- 1996 Eastern Michigan University Spring/Summer Research Award. "Identifying the unseen vocal signatures of bats."
- 1995 Eastern Michigan University Spring/Summer Research Award. "Southern bats in northern climates."
- 1995. Eastern Michigan University. Graduate School Research Support Award. "Heating and cooling rates of bat roost trees."
- 1993 Eastern Michigan University Graduate School Research Support Award "Low roost-site fidelity in tree-roosting bats a test of the thermal hypothesis."
- 1992. Eastern Michigan University. Faculty Research and Creative Projects Award. "Mammals of the Great Lakes Region."
- 1991. Eastern Michigan University, Faculty Center for Instructional Excellence Grants for Teaching Innovations Program. "Introducing the Scientific Method to Budding Biologists."
- 1991. Eastern Michigan University. Graduate School Research Support Award. "Predicting the use of torpor by a small mammal "
- 1990. Eastern Michigan University. Spring/Summer Research Award. "Bat community structure along an urban greenbelt."
- 1989 Eastern Michigan University. Graduate School Research Support Award "Aspects of growth and development in a free-ranging mammal."
- 1984. Boston University. Presidential Fellowship (awarded on the basis of an annual competition).
- 1983. Boston University. Presidential Fellowship.
- 1982 Boston University. Presidential Fellowship.
- 1981. Boston University Doctoral Fellowship.
- 1980. Michigan State University, College of Natural Science. Doctoral Fellowship Declined

EXTERNAL GRANTS AND CONTRACTS:

- 2006. Coastal Energy, LLC. "Pre-construction assessment of bat activity at a proposed wind farm, in Mason County, Michigan." \$67,705
- 2005–2007 State Wildlife Grants Program, Michigan Department of Natural Resources "The bat community at Black Creek, with an emphasis on the evening bat " \$112,000.
- 2005. An acoustic survey of bats in Michigan's Thumb King and MacGregor Environmental. \$30,000
- 2005 Michigan Department of Military Affairs "A survey of bats at Fort Custer, using acoustic, mist-netting, and radiotracking techniques." \$30,000.
- 2004–2006. National Science Foundation. Major Research Instrumentation Program "Acquisitions to create an organismal physiology laboratory for research and teaching." \$287,075. (Co PI).
- 2003–2005 Department of Natural Resources/United States Fish and Wildlife Service. "Bats and mines further exploration and post-gating monitoring " \$12,240.
- 2003–2005 Michigan Department of Natural Resources/United States Fish and Wildlife Service. "Habitat requirements of the endangered Indiana bat in southern Michigan a comprehensive analysis " \$140,721.
- 2002 National Park Service. "Bats and insects in Sleeping Bear Dunes National Lakeshore." \$2,000 (paid directly to graduate student) and in-kind services (housing and boat transportation).
- 2001 Consumers Energy "Swarming and hibernation of bats at Tippy Dam, 2001–2002." \$11,517
- 2001 The Nature Conservancy. "The Indiana bat at the Ives Road Fen " \$3,512

- 2001 Michigan Department of Natural Resources, Nongame Wildlife Research Grant "Ecology of the endangered Indiana bat (*Myotis sodalis*) what is necessary, typical, and acceptable?" \$5,353
2001. DLZ, Inc. "Survey for the Indiana bat along the M-59 construction corridor." \$10,000.
- 2001 Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Bats and mines further exploration and post-gating monitoring." \$5,626
2000. National Park Service. "Preliminary assessment of bats at Sleeping Bear Dunes National Lakeshore." In-kind services (housing and boat transportation)
2000. Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Ultrasonic identification of flying bats a potential management tool." \$5,052.
2000. Consumers Energy Company "Bats and Tippy Dam Winter 2000–2001." \$5,088.
- 1999 Consumers Energy Company "Bats and Tippy Dam Winter 1999–2000." \$3,201
1999. United States Forest Service. "Use of the Anabat system to identify bats on the Manistee National Forest." \$10,759
1999. Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "The bat community in northwestern Lower Michigan." \$4,959
1999. Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Hibernating bats in mines of the western Upper Peninsula." \$7,340
1999. Johnson, Johnson, and Roy, Inc. Ann Arbor, Michigan "Tri-state Pipeline Indiana bat investigations " \$11,135
- 1999 Johnson, Johnson, and Roy, Inc.. Ann Arbor, Michigan Monitoring amphibians and muskrats at a wetland mitigation site. \$2,936.
- 1998–1999. United States Forest Service. "Diurnal roost sites of swarming bats on the Manistee National Forest, with emphasis on the endangered Indiana bat." \$17,161.
- 1998–1999. United States Forest Service. "The bat community on the Manistee National Forest, with emphasis on the endangered Indiana bat." \$35,129
- 1998 Johnson, Johnson, and Roy Ann Arbor, Michigan "Continued monitoring of amphibians at a wetland mitigation site." \$1,616
1998. The Nature Conservancy. "Diet of the endangered Indiana bat along the Raisin River." \$2,000.
- 1998 Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Diet of the endangered Indiana bat in Michigan." \$5,000.
1998. Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Further study of bats in mines of the western Upper Peninsula " \$5,891.
- 1997 Johnson, Johnson, and Roy, Inc. Ann Arbor, Michigan "Amphibians at a wetland mitigation site. effect of color of pitfall traps on capture success." \$1,558.
1997. Consumers Energy Company "Bats and Tippy Dam postrehabilitation monitoring." \$8,927.
1997. United States Fish and Wildlife Service. "Banding bats at Tippy Dam to determine migratory patterns " \$300 (bands donated).
1997. The Nature Conservancy "Ecology and behavior of the endangered Indiana bat along the Raisin River " \$2,000.
1997. Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Ecology and behavior of the endangered Indiana bat along the Raisin River." \$5,832
1996. Johnson, Johnson, and Roy Ann Arbor, Michigan "Amphibians at the Sumpter Township mitigation site " \$1,500
- 1996 Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Bats and mines of the western Upper Peninsula." \$5,771.
1996. Wildlife Forever "A southern bat in a northern climate " \$2,200
1996. Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Ecology and behavior of the Indiana bat in southeastern Michigan " \$4,188.

- 1996 The Nature Conservancy "The endangered Indiana bat and the Sharon Hollow Preserve " \$1,500
- 1995–1998. Johnson, Johnson, and Roy Ann Arbor, Michigan. "Small mammals at the Sumpter Township mitigation site " \$36,253
- 1995 Consumers Power Company. "Management plan for the endangered Indiana bat at Tippy Dam." \$18,151.
- 1995. Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Preliminary survey of bats hibernating in mines of the Upper Peninsula." \$14,133.
- 1995. Michigan Department of Natural Resources, Nongame Wildlife Research Grant. "Roosting habitat of the endangered Indiana bat in southeastern Michigan." \$4,595.
- 1995. Consumers Power Company. "Bats and Tippy Dam. population estimates and species composition." \$5,239.
- 1993. Michigan Department of Military Affairs. Lansing, Michigan "The bat community at Fort Custer." \$20,000.
- 1993 Consumers Power Company. Jackson, Michigan. "The endangered Indiana bat in the vicinity of Big Swan Creek and Needham Road, St. Joseph County " \$2,600.
- 1993. Michigan Department of Natural Resources, Non-Game Wildlife Research Grant "Biology of the federally endangered Indiana Bat (*Myotis sodalis*) in southern Michigan." \$5,400.
- 1992. Michigan Department of Natural Resources, Non-Game Wildlife Research Grant. "Roosting habitat, microclimate, and behavior of the endangered Indiana bat (*Myotis sodalis*) in southern Michigan." \$7,780
- 1992. Perino Technical Services. Springfield, Illinois. "A radiotracking survey of the Indiana bat in central Illinois." \$17,253.
- 1992. Johnson, Johnson, and Roy. Ann Arbor, Michigan "A survey of the Grand Rapids Beltline area for the endangered Indiana bat " \$8,000.
- 1991 Michigan Department of Natural Resources, Non-Game Wildlife Research Grant. "Locating a colony of the endangered Indiana bat, *Myotis sodalis*, by radio-tracking." \$3,450
- 1991. Consumers Power Company. Jackson, Michigan. "Indiana bat roosts in Branch County." \$10,925
- 1990. Michigan Department of Natural Resources, Non-Game Wildlife Research Grant. "Bat community structure along an urban greenbelt." \$3,100.
- 1989. National Science Foundation, Instrumentation and Laboratory Improvement Grant. "Establishing a physiological ecology laboratory with emphasis on computerized data acquisition." \$27,634.
- 1986 Michigan Department of Natural Resources, Non-Game Wildlife Research Grant "The bat community in central Lower Michigan " \$2,800.
- 1983 American Society of Mammalogists, Grant-in-Aid of Research.
- 1983 Sigma Xi Grant-in-Aid of Research
- 1982. Sigma Xi Grant-in-Aid of Research (Local Chapter).
- 1982 American Museum of Natural History, Theodore Roosevelt Memorial Fund, Research Grant.
- 1981. Sigma Xi Grant-in-Aid of Research.
- 1981. National Speleological Society Research Grant
- 1980. National Speleological Society Research Grant.

RECENT CONTRACTS:

- 2006. Wightman and Associates, Inc. "Habitat for Indiana bats and the 38th Street Improvement Project, Kalamazoo County. Michigan."
- 2006 MBS International Airport "Expansion of the MBS International Airport, Saginaw County, Michigan, and habitat for Indiana bats."

- 2006. DLZ, Inc "Expansion of the Oakland County Airport, Waterford, Michigan, and habitat for Indiana bats "
- 2006 Michigan Department of Transportation "A netting survey of bats over the Shiawasee River at M-59 "
- 2006 Wetland and Coastal Resources, Inc "A netting survey of bats at the Stoneco Site, in Richland, Township, Kalamazoo County, Michigan "
- 2006 Capital Consultants "Proposed waste water lagoon for the Village of Maple Rapids, Clinton County, Michigan, and habitat for Indiana bats."
- 2006 Wetland and Coastal Resources, Inc. "Proposed gravel pit in Richland Township, Michigan, and habitat for the endangered Indiana bat "
- 2006. Commonwealth Associates. Genoa-Prizm electrical transmission corridor and habitat for the endangered Indiana bat."
- 2006. DLZ, Inc "The Waverly Road bridge and of habitat for the endangered Indiana bat " 2006.
- 2006 DHL, Inc. "The INL Air Park in Wilmington, Clinton County, Ohio, and habitat for the endangered Indiana bat."
- 2005 Commonwealth Associates. Reconstruction of a 138-kV line and habitat for the endangered Indiana bat."
- 2005. Mead Hunt "Further evaluation of habitat for the endangered Indiana bat at the Lenawee County Airport."
- 2005. Pine Creek Reservation, Potawatami Tribe. "Habitat for the endangered Indiana bat on the Pine Creek Reservation."
- 2005. DLZ, Inc "Proposed changes to the CN Railroad corridor in St. Clair County, Michigan, and habitat for the endangered Indiana bat "
- 2005 JFNew, Inc "The River Run Development in Benton Harbor, Michigan, and habitat for the endangered Indiana bat "
- 2005 DLZ, Inc "Habitat for the endangered Indiana bat and a proposed waste-water pipeline in Calhoun County, Michigan."
- 2005. GeoTrans, Inc. "Habitat for the endangered Indiana bat at a proposed cell-tower sites in Kent and Allegan counties, Michigan."
- 2005. GeoTrans, Inc. "Habitat for the endangered Indiana bat at a proposed cell-tower site in Ottawa County, Michigan."
- 2004. King & MacGregor Environmental." The Wheatfield, a Proposed Housing Development in Section 8, Brownstown Township, and Habitat for Indiana Bats."
- 2004 DLZ, Inc "Habitat for the endangered Indiana bat and expansion of the Battle Creek Airport"
- 2004. Washtenaw County 2004. Brown Park and habitat for the endangered Indiana bat.
- 2004. JJR, Inc "Habitat for the endangered Indiana bat and expansion of the Livingston Co Airport"
- 2004. Consumers Energy Company. "Habitat for the endangered Indiana bat and the Napier-Newburgh Pipeline, Wayne Co., Michigan."
- 2004 Consumers Energy Company. "Habitat for the endangered Indiana bat and the West Oakland Pipeline "
- 2003. Pittsfield Township, Michigan "The bat community in the Central Area Rural Preserve."
- 2003. Entact, Inc "Habitat for the endangered Indiana bat at the Stanley Tools toxic remediation site, Fowlerville, Michigan".
- 2003. Mead and Hunt, Inc. "Habitat for the endangered Indiana bat at the Lenawee County airport "
- 2003. Horizon Environmental Services, Inc 2003. "Habitat for the endangered Indiana bat at a Tank Farm in Ingham County, Michigan "
- 2003. DLZ, Inc "Habitat for the endangered Indiana bat at the Jackson County airport "

- 2003 Ramaker and Associates, Inc. "Habitat for the endangered Indiana bat at a proposed cell-tower site in Oakland County, Michigan "
2003. Hillsdale County Road Commission. "The Genessee Road bridge and habitat for the endangered Indiana bat "
2002. Washtenaw County Road Commission. "Habitat for Indiana bats at the Talladay Road bridge over Paint Creek, Augusta Township, Michigan "
2002. SmithGroup/JJR. "Expansion of Southwest Michigan Regional Airport, Berrien County, Michigan, and habitat for the endangered Indiana bat (*Myotis sodalis*)."
- 2002 SmithGroup/JJR. "A field survey for the Indiana bat at a site in Pittsfield Township, Michigan, along US-12 "
2002. King and MacGregor Environmental, Inc. "The Indiana bat and Secluded Woods "
2002. King and MacGregor Environmental, Inc. "The Indiana bat and Lakeview Estates."
2001. Ramaker and Associates, Inc. "Habitat for the endangered Indiana bat at a proposed cell-tower site in Dearborn, Michigan."
2001. Ramaker and Associates, Inc. "Habitat for the endangered Indiana bat at a proposed cell-tower site in Berrien County, Michigan."
2001. DLZ, Inc. "Expansion of I-94 near Jackson, Michigan, and habitat for the Indiana bat."
2001. Smith Group JJR. "The Indiana bat and Improvement of US-12 in Pittsford Township, Michigan."
2001. Smith Group JJR. "The Indiana bat and Ave Maria Golf Course."
2001. Hartland Schools, Hartland, Michigan. "The Indiana bat on land proposed for a new high school."
2001. Village of Jonesville, Michigan. "Field survey for presence of the Indiana bat at the Waste Water Treatment Plant "
2001. Anderson, Eckstein, and Westrick. "The Indiana bat and the Bonks Bay Development."
2001. DLZ, Inc. "Survey for the Indiana bat along the M-59 construction corridor."
2001. Washtenaw County Road Commission. "Indiana bat habitat and the Wilbur Road Bridge."
2000. Village of Jonesville, Michigan. "Expansion of the Jonesville Waste Water Treatment Plant and habitat for the endangered Indiana bat."
2000. Consumers Energy Company. "Bats and Tippy Dam; Winter 2000-2001."
2000. Michigan Department of Transportation. "Expansion of M-59 from US-23 to I-96 and habitat for the endangered Indiana bat."
2000. King and MacGregor Environmental, Inc. "Island Lake of Novi and the endangered Indiana bat."
2000. Johnson, Johnson, and Roy. Ann Arbor, Michigan. "Expansion of the Livingston County Airport and the endangered Indiana bat."
2000. Consumers Energy Company. "Bats and Tippy Dam; Winter 1999-2000."
- 1999 Johnson, Johnson, and Roy. Ann Arbor, Michigan. "Tri-state Pipeline: Indiana bat investigations "
- 1998 Johnson, Johnson, and Roy. Ann Arbor, Michigan. "Continued monitoring of amphibians at a wetland mitigation site."
1997. Johnson, Johnson, and Roy. Ann Arbor, Michigan. "Amphibians at a wetland mitigation site effect of color of pitfall traps on capture success."
1997. Consumers Energy Company. "Bats and Tippy Dam: postrehabilitation monitoring."
1996. Johnson, Johnson, and Roy. Ann Arbor, Michigan. "Amphibians at the Sumpter Township mitigation site "
- 1995 Consumers Power Company. "Bats and Tippy Dam population estimates and species composition."
1995. Consumers Power Company. "Management plan for the endangered Indiana bat at Tippy Dam."

- 1995–1999 Johnson, Johnson, and Roy Ann Arbor, Michigan "Small mammals at the Sumpter Township mitigation site "
1995. 3/D Environmental Cincinnati, Ohio Outside reviewer for projects involving endangered bats at Fort Leonard Wood, Missouri.
1994. American Electric Power Columbus, Ohio. "The Indiana bat and the Constantine Hydro Plant "
- 1993 Michigan Department of Military Affairs Lansing, Michigan. "The bat community at Fort Custer "
1993. Consumers Power Company. Jackson, Michigan "The endangered Indiana bat in the vicinity of Big Swan Creek and Needham Road, St. Joseph County."
1993. Eaton County Road Commission. Charlotte, Michigan. "The Indiana bat in the vicinity of the Vermontville Highway bridge "
1992. Perino Technical Services. Springfield, Illinois "A radiotracking survey of the Indiana bat in central Illinois "
1992. Johnson, Johnson, and Roy. Ann Arbor, Michigan. "A survey of the Grand Rapids Beltline area for the endangered Indiana bat."
1991. Johnson, Johnson, and Roy. Ann Arbor, Michigan. "Indiana bat roosting habitat at the Lynn–Winchester crossing of the White River, Indiana "
1991. Kent County Road Commission Grand Rapids, Michigan. "Assessing the potential impact of the Belmont/Jupiter crossing on the endangered Indiana bat."
- 1991 Consumers Power Company Jackson, Michigan. "Indiana bat roosts in Branch County."
- 1990 Commonwealth Associates. Jackson, Michigan. "Preliminary assessment of the Battle Creek–Batavia construction corridor as Indiana bat habitat "

GRADUATE STUDENTS

- Jeffrey A. Eichold. 1991. Ontogeny of spermatogenesis in big brown bats (*Eptesicus fuscus*). Undergraduate institution Eastern Michigan University. Current position Chair, Department of Natural Science, Oakland Community College, Southfield, Michigan. (Past president of Michigan Community College Biology Teachers Association)
- Dennis P. Vile 1994 Emergence activities of the big brown bat, *Eptesicus fuscus*, and the Indiana bat, *Myotis sodalis*. Winner, Hellwig Research Fellowship (a competitive, internal program awarded for best thesis proposal) Undergraduate institution University of Michigan—Flint Current position Director of Applied Science & Biology Faculty, University of Michigan—Flint, Flint, Michigan.
- Kimberly Williams. 1995 Roosting ecology and thermal relations of the Indiana bat, *Myotis sodalis* External grants from Theodore Roosevelt Fund of American Museum of Natural History and national Sigma Xi. Winner, Hellwig Research Award (a competitive, internal grant-in-aid) Undergraduate institution Michigan State University. Current position Director, Organization for Bat Conservation, Cranbrook Institute of Science, Bloomfield Hills, Michigan.
- Joseph A. Teramino. 1996. Effects of fat content and foraging success on metabolism in the big brown bat (*Eptesicus fuscus*). External grants from national Sigma Xi and American Society of Mammalogists. Winner, Hellwig Research Award. Undergraduate institution Eastern Michigan University Current position Supervisor, Visteon Corporation, Willow Run, Michigan.
- Rodney Foster 1997 Roost–site selection by the northern bat (*Myotis septentrionalis*) Winner, Hellwig Research Fellowship. Undergraduate institution Saginaw Valley State University Current position Biology Teacher, Stevenson High School, Livonia, Michigan (Teacher of the Year for 2001)
- Susan W. Murray 1999 Diet and nocturnal activity patterns of the endangered Indiana bat, *Myotis sodalis* External grant from Bat Conservation International Winner, Hellwig Research Fellowship. Winner, Best Student Paper in Conservation at North American

- Symposium on Bat Research, University of Arizona Undergraduate institution
University of Massachusetts—Amherst. Current position Ph.D. Candidate, Department
of Biology, Boston University, working on community ecology of rhinolophid bats in
Malaysia
- Karen M. Gajda. 2001 Lipid preferences in the diet of black-capped chickadees (*Parus
atricapillus*). (Co-chaired with Dr. Merlin Minick) Undergraduate institution Eastern
Michigan University Current position. Biologist, Pfizer Corporation
- Annie E. Tibbels. 2002 Acoustic identification and activity of bats in red-pine stands in the
Manistee National Forest. External grant from national Sigma Xi. Winner, Hellwig
Research Award. Undergraduate institution California State University—Northridge.
Current position Ph.D. Candidate, Department of Ecology and Evolutionary Biology,
University of Tennessee, working on population ecology of vampire bats in Mexico
- J. Angel Soto-Centeno. 2004. Dietary ecology of two nectarivorous bats on Puerto Rico: an
analysis using stable isotopes. Winner, Hellwig Research Award. Winner, Dean's
Award for Research Excellence (best thesis in university) Undergraduate institution
Interamerican University, Bayamon, Puerto Rico. Current position: Interdepartmental
Collections Manager, San Diego Natural History Museum, San Diego, California.
- Heidi Rice. 2005. The community ecology of bats and insects on islands of Lake Michigan.
Thesis in preparation. External grant from national Sigma Xi. Winner, Hellwig Research
Award Undergraduate institution. Michigan State University Current position DVM
candidate, Veterinary College, Michigan State University, East Lansing, Michigan.
- Lisa Winhold. 2006 Community ecology of bats in southern Lower Michigan, with emphasis
on roost selection by *Myotis*. External grant from Bat Conservation International.
Winner, Hellwig Research Award. Undergraduate institution: University of Illinois.
Current position Biologist, BHE Environmental, Inc., Cincinnati, Ohio.
- Olivia Munzer. 2008, expected. Diet and roost selection of the evening bat (*Nycticeus
humeralis*) on the northern edge of its range Undergraduate institution Western
Washington University. Current position Graduate Assistant, Eastern Michigan
University.
- Joshua Stumpf. 2008, expected. Niche partitioning by three syntopic species of *Myotis*.
Undergraduate institution California State University—Sacramento. Current position
Graduate Assistant, Eastern Michigan University
- Rachel Bricklin. 2008, expected. Thermoregulation and nocturnal activity of the evening bat
(*Nycticeus humeralis*) on the northern edge of its range Undergraduate institution.
University of Michigan Current position Graduate Assistant, Eastern Michigan
University.

RECENT PUBLIC LECTURES:

- 5th Great Lakes Bat Festival, Cranbrook Institute of Science. 5 August 2006.
4th Great Lakes Bat Festival, Iron Mountain, Michigan. 13 August 2005
Barry-Eaton Health District, Hastings. 17 May 2005.
3rd Great Lakes Bat Festival, Cranbrook Institute of Science 7 August 2004.
Michigan Community College Biologists Association, Royal Oak, 4 October 2003.
2nd Great Lakes Bat Festival, Cranbrook Institute of Science 2 August 2003
Chippewa Nature Center, Midland 31 May 2003.
Michigan United Conservation Clubs, District 20, Lansing 12 September 2002.
1st Great Lakes Bat Festival, Iron Mountain. 10 August 2002
University of Michigan, Adult Education, Ann Arbor. 10 June 2002.
Hoyt Hall Residence Association, Eastern Michigan University 11 March 2002
University of Michigan, Adult Education, Ann Arbor. 30 May 2001
Barry-Eaton Health District, Charlotte. 25 October 2000
Lake Bluff Audubon Center, Manistee. 25 April 1998

North Wind Books, Eagle Harbor. 16 August 1997.
 Huron Valley Audubon Society, Brighton. 13 May 1997.
 Wayne County Alliance for Mathematics and Science, Redford. 25 March 1996.
 Bowling Green State University, Center for Environmental Studies. 13 March 1996
 Michigan Technological University, Sigma Xi, Houghton. 5 March 1996
 Grosse Pointe Audubon Society, Grosse Pointe. 15 May 1995.
 McKune Library, Chelsea. 25 April 1995.
 Chippewa Nature Center, Midland. 24 September 1994
 Hartland Home and Garden Club, Hartland. 13 September 1994.
 Ann Arbor West Kiwanis Club, Ann Arbor. 6 September 1994.
 State Conference of Master Gardeners, Michigan State University. 15 July 1994.
 Wild Birds Unlimited, Taylor. 11 May 1994.
 Howell Master Gardeners, Howell. 20 April 1994.
 University of Michigan, Dearborn. 14 May 1993.
 Divine Child High School, Dearborn. 23 April 1993
 Belle Isle Nature Center, Detroit. 24 May 1992.
 Chelsea Kiwanis Club, Chelsea. 23 March 1992.
 Ypsilanti Kiwanis Club, Ypsilanti. 29 May 1991.

EXTERNAL PUBLICITY GENERATED BY MY RESEARCH:

Community Media Network, Public Access Television, Troy, Michigan. "Rare bats in Michigan." Broadcast 21 November 2006.
 Ann Arbor News. "Bat study looks at why they're [evening bats] here." 6 November 2006.
 Story picked up by WWJ, WLEN, and Michigan Public radio
 WAAM Radio. 22 August 2005
 Detroit Free Press. "EMU team finds 1st batch of evening bats in state." 18 August 2004.
 Article was carried regionally by AP and picked up by National Public Radio.
 Channel 9/10 television, Traverse City. 5 March 2004. Segment on bats in Tippy Dam.
 Michigan Public Radio. Segment of program "Stateside" that was aired on 13 February 2004.
 Cadillac Evening News. "Eastern Michigan biologist studies lifecycle of bats." 21 October 2001. Article was carried statewide by AP
 Ann Arbor News. "Bats." 30 September 2000. Distributed statewide by Booth News Service.
 Cadillac News. "Bat survey turns up two rare animals in national forest." 16 September 1999.
 Cadillac News. "Hanging with the bats at Tippy Dam." 2 September 1999
 Traverse Magazine. "The bat squad." October 1998
 Ann Arbor News. "Not so scary. EMU biologist specializes in the study of bats." 22 October 1998.
 Detroit News. "Once-feared bats now friends." 1 December 1997.
 WCBN FM radio. Interviewed for one hour by Marvin Bartlett on program entitled "All Kidding Aside." 25 October 1997
 Detroit Free Press. "Bats in the Spillway." 25 September 1997.
 Traverse City Record Eagle. "Bats make Tippy Dam Metropolis." 14 September 1997
 Muskegon Chronicle. "Endangered bats counting on dam workers for life, home." 22 July 1997
 Distributed statewide by Booth News Service.
 Michigan Out-of-Doors Magazine. "Bat man of Ypsilanti." March 1997
 WAAM Radio. 12 August 1996
 Detroit Free Press. "Scientists try to beat UP mine closings to save hibernating bats." 6 May 1996. (The story was distributed nationally by the AP.)
 Iron Mountain Daily News. "Tiny bat finds a home." 3 February 1996. (Story was distributed by Thomson News Service and appeared in papers from Houghton to Flint).
 Lansing State Journal. "New bridge project set." 22 March 1995
 Detroit News. "Books take a walk on Michigan's wild side." 6 February 1995

Iron Mountain Daily News "Bats come in brown, red, silver and hoary " 10 December 1994
 Bats (magazine produced by Bat Conservation International, Austin, Texas). "Conservation initiatives ensure continued progress " Winter 1994.
 Marquette Mining Journal "Misunderstood bats abandoned U.P. mines home to big insect eaters." 30 October 1994. (Story was distributed by AP and appeared in most Michigan papers)
 Marquette Mining Journal. "Bats, closed mines can co-exist." 11 October 1994.
 Bay City Times. "Bats." 19 August 1994
 Maple Valley News (Nashville, MI). "Bat man makes flying creatures his life's work. 28 June 1994.
 Riverview News Herald. "What's going on." 11 May 1994.
 WAAM Radio 3 November 1993.
 Ann Arbor News. 13 September 1993.
 WAAM Radio. 27 August 1993.
 Michigan Out-of-Doors Magazine. "The bats of Michigan." March 1993.
 TV-10 (Lansing/Jackson) 22 September 1992
 WPZA Radio (Ann Arbor). 30 October 1991
 WEMU Radio (Ypsilanti). September 1991.
 CBS Radio, The Osgood File September 1991.
 Detroit Free Press. "On the bat track." 20 August 1991. (The story was distributed nationally by AP.)
 Detroit Free Press "Jeepers creepers." 7 July 1991.

Prein & Newhof

ARCADIS of New York, Inc.

Statement of Qualifications

March 2007

Prein&Newhof

Professional Profile

Prein&Newhof is 100% employee-owned. P&N employs over 100 full-time personnel, including engineers, surveyors, drafters, geologists, chemists, communication specialists, and support staff.

History

H. Edward Prein, P.E., P.S., and Thomas Newhof, P.E., founded Prein&Newhof in Grand Rapids in 1969. Since then, the firm has expanded to include an environmental laboratory in Grand Rapids, established in 1974. Prein&Newhof has also expanded to include offices in Holland in 1978, Byron Center in 1994, and Muskegon in 1997. In the summer of 1997, Prein&Newhof purchased Wilkins&Wheaton, a 90-year-old engineering company in Kalamazoo.

Contact Information

Grand Rapids

3355 Evergreen Drive NE – Grand Rapids, MI – 49525
t.616-364-8491 – f.616-364-6955

Laboratory

3260 Evergreen Drive NE – Grand Rapids, MI – 49525
t.616-364-7600 – f.616-364-4222

Holland

258 James Street – Holland, MI – 49424
t.616-394-0200 – f.616-394-5914

Byron Center

1360 84th Street – Byron Center, MI – 49315
t.616-878-9296 – f.616-878-9452

Muskegon

4910 Starha Avenue – Muskegon, MI – 49441
t.231-798-0101 – f.231-798-0337

Kalamazoo

7123 Stadium Drive – Kalamazoo, MI – 49009
t.269-372-1158 – f.269-372-3411

On the Internet

www.preinnewhof.com
info@preinnewhof.com

Professional Services

Civil and Environmental Engineering

Water Supply

- Surface Water Intakes
- Wells, Hydrogeology
- Wellhead Protection
- Treatment Plants
- Pumping Stations
- Storage Tanks
- Transmission & Distribution Mains
- System Modeling

Wastewater Systems

- Collection Systems
- Pumping Stations & Force Mains
- Treatment Plants
- Industrial Pretreatment

Stormwater Management

- Collection Systems
- Retention Basins
- Flood Control

Transportation

- Airports
- Roads & Streets
- Non-Motorized Trails

Marine Engineering

- Marinas
- Waterways
- Shore Protection

Site Design

- Industrial Parks
- Commercial Sites
- Residential Sites
- Recreational Facilities
- Educational Facilities
- Health Care Facilities

Structural Engineering

- Commercial & Industrial Buildings
- Educational Buildings
- Dams & Bridges

Geotechnical Engineering

Additional Municipal Services

- Rate Studies
- Special Assessment Districts
- Site Plan Review/Ordinances
- Intra-Agency Utility Agreements
- Funding Assistance
- Consumer Confidence Reports
- Vulnerability Assessments

Professional Surveying

Construction Surveys

Land Surveys

Topographic Surveys

Environmental Consulting

Brownfield Redevelopment

Site Assessments (Phase I & II)

Remediation (Phase III)

Tank Services

Hazardous Waste Management

Landfill Design and Closure

Regulatory Compliance

Environmental Laboratory

Organics

Metals

Inorganics

Microbiology

Field Services

GIS & Mapping

GIS Services

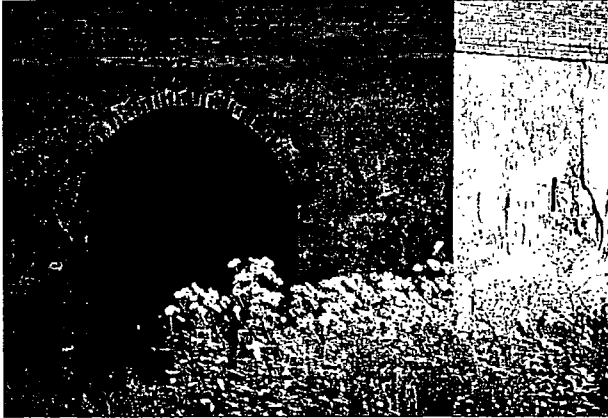
- Data Collection & Creation
- Digital Orthophotography
- Analysis
- Scanning & Data Conversion

Base/Street & Utility Mapping

Tax/Parcel Mapping

Custom Mapping

Civil & Environmental Engineering



Prein&Newhof offers a broad range of civil and environmental engineering services, working with clients from both the public and private sectors. The firm is respected both area- and state-wide for its work to create and restore the foundations of modern communities

Over 30 area townships and municipalities, as well as local agencies, retain the firm for water and sewer needs, transportation improvements, and ways to enhance the environment in which their residents live.

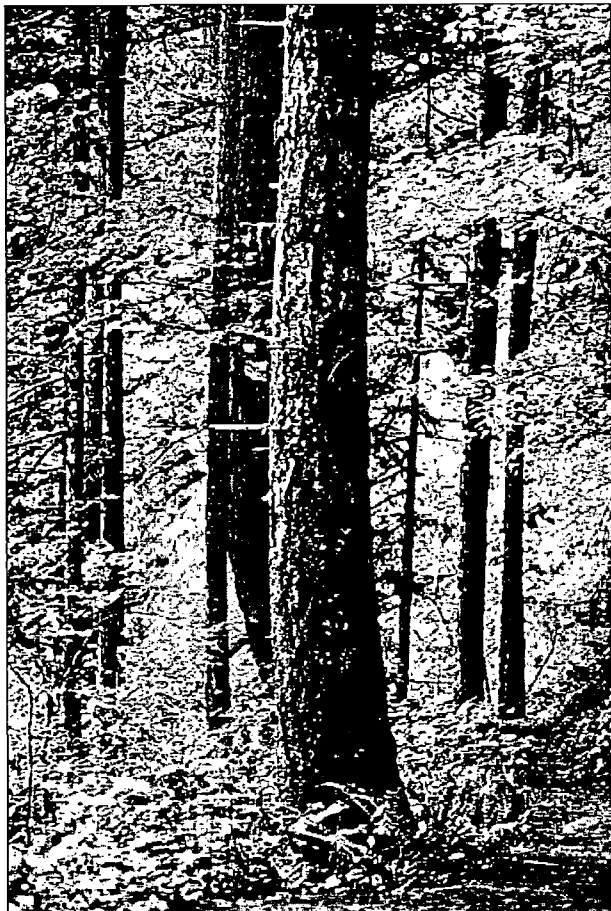
Prein&Newhof has close working relationships with the Michigan Department of Environmental Quality, the Michigan Department of Natural Resources, and the Michigan Department of Transportation. These relationships assist clients in complying with state regulations

The firm is also available for work on private projects, designing parking lots, site improvements, and structures for various enterprises.

Prein&Newhof's civil and environmental engineering experience includes the following.

- Water Supply
- Wastewater Systems
- Stormwater Management
- Transportation
- Marine Engineering
- Site Design
- Structural Engineering
- Geotechnical Engineering and Testing

Professional Surveying



Prein&Newhof's surveying professionals are committed to implementing the latest time-saving technological advances to benefit their clients throughout West Michigan.

Although P&N's survey crews provide many of their services in-house for the firm's engineering and construction projects, they also provide complete land (boundary) surveys for plats, condominiums, and land divisions. P&N surveyors also produce topographic surveys, particularly route surveys for drains, roads, utilities, and railroads.

P&N's capabilities include the following types of surveys:

- Construction Surveys
- Land Surveys
- Topographic Surveys

Environmental Consulting



Prein&Newhof combines its experience in engineering with its expertise in hydrogeology, geology, and regulatory compliance to form a multi-discipline environmental consulting group, serving municipal and private clients

Prein&Newhof's environmental consulting team works closely with industry, attorneys, developers, lending institutions, commercial realtors, and state and local governments.

Prein&Newhof's environmental consulting group assists its clients in the following areas.

- Brownfield Redevelopment
- Site Assessments (Phase I&II)
- Remediation (Phase III)
- Tank Services
- Hazardous Waste Management
- Landfill Design and Closure
- Regulatory Compliance

Environmental Laboratory



Prein&Newhof established its Environmental Laboratory in 1974, to meet the analytical testing needs of its engineering clients. Since then, P&N has developed its laboratory capabilities to provide comprehensive analytical testing services in the areas of soil, water, wastewater, solid waste, and hazardous waste

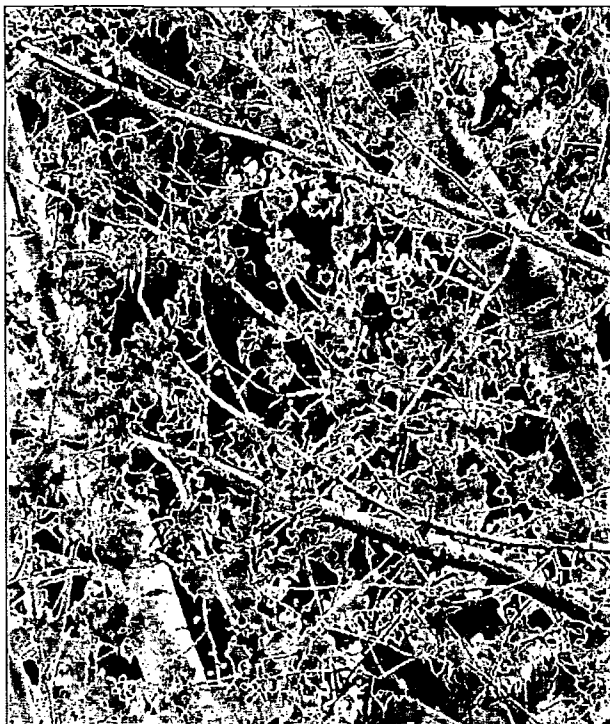
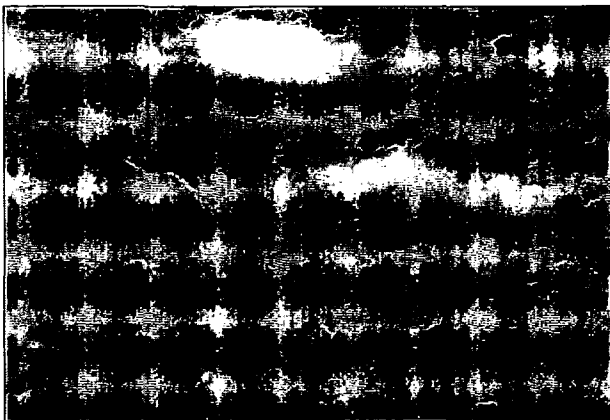
Prein&Newhof is one of the few laboratories in West Michigan specializing in the analysis of drinking water samples. The firm is also Drinking Water Certified by the Michigan Department of Environmental Quality.

The lab's capabilities include the following.

- Organics, metals, inorganics, and microbiology
- NPDES/IPP compliance monitoring
- Field services including placement of auto samplers and sampling

In addition to providing quality analytical services to support client environmental needs, Prein&Newhof also helps clients understand and comply with state and local environmental regulations.

GIS & Mapping



Prein&Newhof has skill and experience in both mapping and geographic information systems (GIS). Prein&Newhof takes great pride in its long history of map-making. The firm provides mapping services to municipal and private organizations. These services include creation, maintenance, and reproduction of a variety of maps.

GIS takes mapping one step further by attaching information to a map's geography and compiling it into an interactive system. GIS is a system formed by converging maps and data to assess information. By utilizing a geographic information system, the user can perform spatial analysis and solve "what if" scenarios quickly and accurately. From a single data layer to an entire system, Prein&Newhof will customize the application to fit your needs, providing comprehensive training and support.

P&N offers the following mapping services.

- Utility Maps
- Base/Street Maps
- Zoning Maps
- Tax Maps
- Election Precinct Maps
- Customized Municipal GIS
- GPS Data Collection
- Scanning & CAD Conversions

Professional Resume

Rex A. Million, P.S.

Surveying Manager

Education

B S Surveying
Ferris State University, 1977

License

PS Michigan, 1981

Certification & Training

Certified Storm Water Operator

Professional Activities

Michigan Society of Professional Surveyors

Professional History

Prein&Newhof, 1977 – present
Bauer Engineering, 1972 – 1974
Francis Smith & Associates, 1971 – 1972

Summary

Rex has been with Prein&Newhof since 1977, in a wide variety of positions. He has served as professional surveyor and survey party chief, and has held the position of resident engineer on many airport construction projects. As Prein&Newhof's field representative, he has planned and executed field surveys from the preliminary phase through construction, coordinated construction activities, interpreted plans and specifications, and assured contract compliance.

Rex has worked on approximately 30 separate airport projects including concrete and asphalt paving, porous friction course, excavation, grading, storm and sanitary sewers, water mains, airfield lighting, navigational aids, obstruction removal, joint repair, fencing, and legal descriptions

In the fall of 1998, Rex assumed the position of Survey Manager at Prein&Newhof's Kalamazoo Office. Shortly thereafter, he also assumed the position of Kalamazoo Office Manager.

Prein&Newhof

Professional Resume

B.S. Geology and Group Sciences
Western Michigan University, 1998

Surveying Engineering Courses
Ferris State University

P.S. Michigan, 2006

fi

40-Hour HAZWOPER Training with annual updates
Phase II Environmental Site Assessments
State and Federal Regulatory Final and Initial
Assessments

Prein&Newhof, 2000 – present
Carr & Associates Land Surveying, 1999 – 2000
American Hydrogeology Corporation, 1998 – 1999
Western Michigan University, 1998
Michigan Department of Transportation, 1997

Chris began working at Prein&Newhof in 2000, after two years of field experience with Carr & Associates and one year with American Hydrogeology. His three years of survey engineering at Ferris State University has enabled him to quickly rise to a Crew Chief position.

Chris's confident and energetic attitude, along with his organizational skills, have made him an asset on many projects.

Terra Contracting, LLC



Terra Contracting, LLC

"Exceptional Environmental Services"

2612 Miller Road Kalamazoo, MI 49001

www.terracontracting.net

Phone 269 342 0231 Fax 269 342 0238



February 20, 2007

Eric Hritsuk
Arcadis-BBL
30 West Monroe
Chicago, Illinois 60603-2404

Re: Terra Qualification Statement
Plainwell Impoundment

Dear Eric

The following represents a qualification statement of Terra Contracting, LLC for the above mentioned project.

The following are sediment related projects Terra Contracting has completed

**Fox River Paper – Vicksburg, Michigan
Sediment Removal**

BBLES contracted with Terra to perform remediation tasks at the former paper mill. The tasks included

- Vacuum removal of submerged sediments from a former emergency outfall area located in a wetland.
(Used innovative technology developed by Terra to remove sub-surface sediments utilizing industrial vacuum equipment)
- Insitu-capping of remaining sediments using geosynthetic materials and aggregate
- Excavation, transportation and disposal of contaminated soils from a former aeration facility

**Willow Island, WV
RCRA Treatment Basin Sediment Removal**

BBLES contracted with Terra to perform sediment removal operations as a part of a 'taint' removal plan initiated for the Part B closure of a RCRA treatment unit. Contaminated sediments existed at the bottom of the RCRA aeration basin. The basin had to remain active during the sediment removal operations. The basin was equipped with relief valves in the bottom so that conventional excavation operations or suction head dredging operations could not be conducted for fear of damaging the relief valves.

Integrity

Intensity

Safety

Customer Focus

Training

Teamwork

Terra worked closely with BBL to develop a plan to utilize the sediment vacuuming operations mentioned above. The trick was to overcome a 30'+ vertical lift.

A technique was developed and the project went forward. In excess of 400 cubic yards of sediment were removed from the basin without any damage to the relief valves or any other structure within the basin.

Willow Boulevard Landfill

Georgia-Pacific, with oversight provided by BBL, contracted with Steve Taplin to remove contaminated sediments from the Kalamazoo River along the western shoreline of the Willow Boulevard Landfill.

A temporary cofferdam was constructed out in the river to isolate the removal area. The river water was pumped from the work area prior to excavation operations. Berms were constructed within the work area to manage groundwater entering the work area. The groundwater was pumped from cell to cell as excavation operations proceeded.

Contaminated sediments were transported to the working face of the Willow Boulevard Landfill and stabilized using fly ash and wood chips prior to placement. The stabilized residuals were placed in accordance with a drainage plan that would create positive drainage across the site.

Contaminated water was treated on-site using the following components: (1) 9,000 lb. sand filter, sediment flocculation, particulate filtration and carbon filtration. Water treatment operations took place 24 hours per day, 7 days per week.

Once all removal activities were completed, clean fill was placed along the western and northwestern shorelines of the landfill in order to provide a clean interface with the river. Restoration activities included placement of a 1' sand cap across the exposed residuals, placement of field stone underlain with geotextile along the riverbank and placement of topsoil along the perimeter berms above the waterline of the river. In 2001 a 6" topsoil layer was placed over the entire site and seeded.

Approximately 9,000 cubic yards of contaminated sediment were removed from the river. In all, approximately 2 million gallons of water were treated during field operations.

Consumers Energy – Marshall House MGP Site

The project involved the installation of sheet piling along the creek followed by the construction of a 'funnel and gate' system consisting of a french drain connected to (3) underground carbon cells. Impacted soils were removed from the site throughout remediation activities. During the course of soils excavation, contaminated sediments were identified in the creek abutting the site. Terra employed the use of its Sed-Vac system to extract these sediments from the creek bed without bypass pumping the creek or installing sheet piling to divert the creek.

King Street Storm Sewer

In 1999, Steve Taplin was contracted by BBLES to remove contaminated sediments along the Kalamazoo River at the King Street Storm Sewer outlet. The project involved the installation of

Integrity

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Safety

Customer Focus

Training

Teamwork

approximately 300 lineal feet of sheet piling to isolate the work area from the Kalamazoo River. Approximately 9,000 cubic yards of PCB contaminated paper residuals were excavated and placed within the King Highway Landfill owned by Georgia-Pacific. During the course of excavation operations water entering the site was pumped into transportation vehicles and moved to the water treatment operated at King Highway Landfill.

The King Street Storm Sewer was capped and covered. The site was subsequently backfilled and restored. Restoration along the riverbank will included the placement of field stone underlain with geotextile for erosion control and aesthetics.

Other Related Projects

Parchment, Michigan Crown Vantage

In conjunction with BBLES, Terra provided turn key construction services to execute the closure of two landfills encompassing approximately 45 acres. The landfills were used for the disposal of coal ash and paper residuals. In addition a ten acre wastewater treatment lagoon required closure

The lagoon closure became the initial effort as Terra was able to assist Georgia-Pacific in receiving coal ash from another site, also a customer of Terra, within 2 miles of the work site. The coal ash was delivered to the Crown Vantage facility in gravel trains at a rate of approximately 6,000 cubic yards per day. The coal ash was used to stabilize the existing sludges after the free water had been pumped off. Once stabilized the sludge was excavated and placed on the two landfills. The additional materials helped provide minimum grades for water management and run-off

Terra crews then re-contoured the landfills, excavated approximately 20,000 cubic yards of coal ash from the banks of the Kalamazoo River and readied the site to receive liner. Terra managed the liner crew and sub-contract. With the liner in place Terra crews placed the protective layer over the liner and began the installation of soil erosion structures. Soil erosion structures consisted of the following: mid-slope swales and diversion berms, rock down-chutes, two sedimentation basins, sedimentation basin outlet structures, topsoil, seeding and mulch of the entire site.

Georgia-Pacific Kalamazoo, Michigan King Highway Landfill

Construction took place from the summer of 1998 through the spring of 2000. The project involved site preparation including erosion controls, clearing and grubbing, road construction and riverbank stabilization; pumping and treating more than 2 million gallons of PCB contaminated water; stabilization, placement and compaction of residuals in the final cell of the landfill and closure of the 22 acre landfill site, including a multi-layer capping system and excavation of over 294,000 tons of PCB contaminated residuals both in and out of the Kalamazoo River.

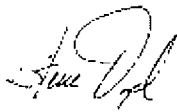
**Georgia-Pacific
Kalamazoo, Michigan
Davis Creek Bank Stabilization**

In the fall of 1997 Steve Taplin oversaw construction activities related to the stabilization of the banks along Davis Creek at A-Site. Debris within the creek was initially removed. Large trees along the banks were removed and the banks cleared of vegetation. The banks were then re-contoured to allow for bank stabilization materials to be applied. The toe of the slopes, and proceeding 4' above the water line of Davis Creek, were covered with field stone underlain with geotextile. The remaining slopes were re-seeded and stabilized using mulch.

I encourage you to inspect our website, terracontracting.net, to view many other projects Terra has completed over the last several years.

Attached please find resumes for key personnel.

Sincerely,
Terra Contracting, LLC



Steve Taplin
President

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Professional Profile

Steve Taplin—President

Mr. Taplin has more than 25 years experience working in all phases of the environmental services industry. He has direct experience in every phase of the business including management and operations, finance, human resources, marketing, sales, and project supervision and general labor. His experience with remediation projects involves a wide range of industries and scales ranging from under \$100,000 up to several million dollars. He has served as project manager on hundreds of projects involving remediation; industrial cleaning; sewer and pipe cleaning and installation; hazardous and non-hazardous waste removal, transportation and disposal; emergency spill response; and municipal services.

Expertise

- Project estimate development
- Project design
- Project scheduling
- Hazardous waste handling
- Regulatory compliance
- Chemical analysis
- Operation and maintenance of a complete range of equipment including excavators, trucks, industrial vacuums, water blasters, jet rodders and others.

Education and Specialized Training

- Compliance Management Course on USEPA and USDOT Regulations
- Data Sufficiency and Decision Making for Site Remediation, University of Wisconsin—Madison College of Engineering
- Groundwater Pollution and Hydrology—the Princeton Course
- 40-Hour OSHA HAZWOPER training
- LPS (Loss Prevention System) training
- Terra BASICS Training



Professional Profile

Gary Loveland, P.E.—VP Sales & Operations

Mr. Loveland has 34 years of experience in civil and environmental engineering. Early in his career, his work involved municipal and highway engineering. This included the design of streets, highways (including interstate highways), bridges, storm sewers, sanitary sewers, pumping stations, force mains and water mains. In addition, his responsibilities have included the design of stormwater management facilities, including drainage channels, detention basins, spillways and outlet structures.

For the last 20 years, Mr. Loveland's main focus has been on environmental projects, particularly land-based projects related to landfills and waste piles. He has provided input in all stages of project development, including identification of project issues, development and screening of conceptual solutions, preparation of detailed plans and specifications, construction oversight, contract administration and project management.

Expertise

- Design and construction of site grading and site utility improvements.
- Permitting of environmental projects, particularly landfills.
- Design and construction of landfills.
- Design and construction of landfill and waste pile closures.
- Project development-from conception to implementation
- Project management
- Strategic project planning
- Regulatory negotiations and liaison
- Budgetary forecasting

Education and Specialized Training

- B. S. Civil Engineering, University of Wisconsin- Platteville, 1971
- LPS (Loss Prevention System) training
- Terra BASICS Training



Professional Profile

Rich Anson—Operations Manager

Mr. Anson has more than 25 years experience in the remediation and construction industries. He has been a skilled equipment operator in a variety of settings including excavation, foundry, nuclear power plants, and sewer/pipeline construction. He has worked as a brick and block layer. And he has owned and operated his own excavation company where he had full management and operational responsibilities.

Expertise

- Equipment safety instructor
- Radioactive material handling
- Dispatch
- Job site supervision
- Job estimation
- Operating expertise in a wide range of equipment including trucks, excavators, dump trucks, backhoes

Education and Specialized Training

- 40-Hour OSHA HAZWOPER training
- Small business management training
- General radiation training
- LPS (Loss Prevention System) training
- Terra BASICS Training



Professional Profile

Don Hopper—Senior Project Manager

Mr. Hopper has more than twenty years of experience in environmental engineering. He has been involved in field inspection and laboratory testing on a wide range of projects including sewer basin overflow; FAA/MDOT/MAC airport renovations; and MDOT and MCRC roadways and bridges. Mr. Hopper has served as a field hydrogeologist ; has directed quality control and assurance for a variety of building projects, and has extensive experience in landfill management including compliance with MDEQ Type II sanitary landfills and large scale contaminated & hazardous soil remediation projects. He has also served as safety officer responsible for compliance with OSHA standards.

Expertise

- Field surveying using Total Station, AutoCAD and Eagle Point software
- Management of landfill operations involving cell containment liners, leachate collection systems, final cover cap installations, gas collection and containment systems
- Bridge, roadway inspection
- Technical hydrogeological investigations for Phase I, II and III Environmental site assessments
- Soil inspection, testing and classification
- Laboratory and field testing of a wide range of materials including soils, concrete, asphalt grout, mortar and steel.

Education and Specialized Training

- B.S. Geological Engineering, Michigan Technological University, Hydrogeology
- B.S. Environmental Engineering, Michigan Technological University, Hazardous Waste Management
- Hazardous Waste Manifesting
- 40-Hour EPA 165.5 Hazardous Material Incident Response Operations Course
- 80 Hour Hazardous Materials Technician Course (Emergency Responder)
- Surveying capabilities: Using Total Station and Husky FS/2 Data Collector/GPS automated equipment
- Operating expertise with a wide range of equipment including operating excavators, dozers, scrapers, front loaders, compactors, and Bobcats
- LPS (Loss Prevention System) training
- MSHA Part 46 Trained
- OSHA 500—Train the Trainer Certificate
- Central Plastics—Factory Certified Electro Fuse LDC Trainer
- Confined Space Entry



Professional Profile

Keith Schillo—Safety Director

Mr. Schillo has nearly 20 years of experience in safety management. He has had supervisory responsibility for the handling, shipment, treatment and disposal of a wide range of hazardous chemicals and waste including acids and fuels. Mr. Schillo has managed treatment storage disposal facilities; worked extensively with tank trucks and tank cars; supervised the production, pumping, transfer and safe unloading of chemicals; overseen equipment maintenance programs; and monitored fuel and raw material shipments for plant operations. He has also designed and led employee safety training programs.

Expertise

- Safe handling, transfer, transporting and disposal of hazardous waste
- Piping and incineration program design
- Firefighting
- Rail tracking
- Emergency spill response
- Mitigation of hazardous waste release
- Fuel and acid handling
- Safety program design and training
- Waste handling equipment maintenance

Education and Specialized Training

- Fuel Handling Course, Texas A&M University
- 40-hour OSHA HAZWOPER Training: Purdue University, Lafayette IN. US Steel, Gary IN.
- ERM, Alsip, IL. TTC, Pueblo, CO
- Highway Emergency Response Specialist-40-Hours: TTC, Pueblo, CO
- Confined Space Entry-48-Hours: US Steel, Gary, IN.
- State of Indiana-800 Hours-Certified Rescue Firefighter
- LPS (Loss Prevention System) training
- Terra BASICS Training



Professional Profile

Tom Anoskey—Project Manager

Mr. Anoskey has over 30 years experience in landfill construction and management. Early in his career he managed the daily operations for a landfill and supervised the construction of Sub-title D cells, equipment operators and the scale office. He has managed a number of landfills throughout the Midwest and built and run Transfer Stations in Missouri, Illinois and Indiana. He is experienced in all aspects of office and field management and is knowledgeable on the operation of heavy equipment. His landfill experience includes all aspects of construction, operations and supervision and management.

Experience

- Superintendent—Fox Construction—landfill construction at Deercroft Landfill—Earth Movers Landfill—Prairie View Landfill
- Superintendent—Oselka Construction—cell construction projects at Forest Lawn Landfill
- Manager—Republic Industries—Managed daily operations for Gary Municipal Landfill
- Manager—Continental Waste Industries—Responsible for daily operations of Forest Lawn Landfill, Southern Illinois Regional Landfill and Gary Municipal Landfill
- Operations Manager—Forest Lawn Landfill—Managed daily operations

Education and Specialized Training

- University of Wisconsin—Madison College of Engineering—Landfill Operations and Management Certificate
- State of Illinois—Class A Special Waste Endorsement Landfill License
- State of Michigan—40-Hour Hazwoper Training
- State of Michigan—DNR Storm Water Management Industrial Site Certification
- LPS (Loss Prevention System) training
- Terra BASICS Training



Professional Profile

Mitch Kawcak—Project Manager

Mr. Kawcak has over 27 years of experience in construction management on a variety of environmental remediation projects. He has “hands-on” management and field experience with a range of civil and environmental remediation systems, including thermal and peroxide injection, soil mixing/fixation, slurry wall construction, excavation, ex-situ soil stabilization, landfill applications, building pads, all phases of utility installation and drilling techniques. He has worked on projects for ChevronTexaco, ConocoPhillips, ExxonMobile, Georgia Power, BP Oil Company, Kerr McGee and Bechtel.

His construction management responsibilities include: project management, crew supervision, site set-up and mobilization, field accounting, budget management, adherence to Remedial Action Plans, regulatory compliance, generating daily field reports, adherence to regulatory permits and subcontractor management.

Representative Project Experience

- Construction Manager—ChevronTexaco McKittrick Mining Project—California
- Construction Manager—ConocoPhillips Glenrock Demo Project—Wyoming
- Construction Manager—Honeywell Buffalo Harbor Project—New York
- Construction Manager—BP Amoco Asphalt Stabilization Project—Maryland
- Project Superintendent—Tennessee Valley Authority—General Electric—Tennessee
- Project Superintendent—Moors Lane Expansion—Moors Lane—Tennessee
- Project Superintendent—Savannah MGP Dissipation Trench Pilot Study—Georgia
- Site Superintendent—EPA Superfund Site—Vancouver Chrome Project—Washington
- Site Superintendent—Georgia Power—Athens MGP Project—Georgia
- Site Superintendent—Andersite Quarry Project—Ft. Lupton, Colorado

Education & Specialized Training

- Utah Technical College—Labor Management
- OSHA 8-Hour Hazwoper Refresher
- OSHA Trenching and Excavation Competent Person Certification
- OSHA All Pro Supervisor Certification
- OSHA 30-Hour Regulations and Standards Certification
- OSHA Heavy Equipment Trainer and Certifier
- OSHA Confined Space Entry and Lock Out/Tag Out Certification
- H2S Certified and CPA/F. Aid
- ChevronTexaco Loss Prevention System (LPS), On-Site Health & Safety
- LPS (Loss Prevention System) training
- Terra BASICS Training



Professional Profile

Steve Simoneaux—Estimator

Mr. Simoneaux has over 30 years experience in the construction and environmental industries. He brings a strong background working with governmental agencies with in-depth knowledge of federal and state environmental & safety regulations. His experience includes project management, operations, estimating, sales & marketing and site design and development. He has overseen multinational work crews and has managed numerous foreign and domestic remediation projects.

Expertise

- Estimating
- Project Management
- Computer software design
- Staff Supervision
- Hazardous Waste Incineration
- Site Design & Development
- Artificial Wetland Construction & Operation
- Marine construction & Dredging
- Waste Water Treatment Plant Construction & Operation
- Pipe Bursting
- Slip Lining

Education and Specialized Training

- B.S. Nichols State University
- 40-HR OSHA Hazwoper Training
- State of Michigan—Storm Water Management Certified
- 36-Hour Site Safety Officer Training
- Regulatory Awareness Training Course
- Heavy Equipment Operator



Professional Profile

Dave Frost—Project Manager

Mr. Frost has almost 20 years experience in the remediation and construction industries. He is an experienced heavy equipment operator and has operated excavators, dozers, graders and loaders. His field experience includes project management, crew supervision, daily logistics, operations and site supplies & material management. His construction experience includes landfill construction, finish grading and pipe installation.

Experience

- Terra Contracting—Project Manager
- Fox Contractor's—Heavy Equipment Operator
- Bailey Excavating—Heavy Equipment Operator
- Aggregate Industry—Operator
- Wolverine Paving—Plant Foreman
- American Aggregates—Assistant Plant Operator
- Landscape Specialties—Equipment Operator

Education and Specialized Training

- 8-Hour Refresher Hazwoper Training
- CPR/First Aid Training
- 4-Hour MSHA Training
- LPS (Loss Prevention System) training
- Terra BASICS Training
- CDL License, Class A

